UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
BIN C15700
Seattle, WA 98115-0070

Refer to:
OSB2002-0061-FEC

May 31, 2002

Mr. Fred Patron
U.S. Department of Transportation
Federal Highway Administration
The Equitable Center, Suite 100
530 Center Street NE
Salem, OR 97301

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation on the Effects of a Roughened Chute Fish Passage Project on Gooseneck Creek, South Fork of the Yamhill River, Polk County, Oregon.

Dear Mr. Patron:

Enclosed is a biological opinion (Opinion) pursuant to section 7 of the Endangered Species Act (ESA) prepared by the National Marine Fisheries Service (NMFS), on the effects of the proposed Gooseneck Creek Roughened Chute Project in Polk County, Oregon. In this Opinion, NMFS concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*) and UWR steelhead (*O. mykiss*), or destroy or adversely modify designated critical habitat. As required by section 7 of the ESA, NMFS included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary to minimize the impact of incidental take associated with this action.

This Opinion contains an analysis of the effects of the proposed action on designated critical habitat. Shortly before the issuance of this opinion, however, a Federal court vacated the rule designating critical habitat for the evolutionarily significant units (ESUs) considered in this Opinion. The analysis and conclusions regarding critical habitat remain informative for our application of the jeopardy standard even though they no longer have independent legal significance. Also, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary at that time. For these reasons and the need to issue this Opinion in a timely fashion, our critical habitat analysis has not been removed from this opinion.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation, please contact Tom Loynes of my staff in the Oregon Habitat Branch at 503.231.6892.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Molly Cary - ODOT
Greg Apke - ODOT
Randy Floyd - ODOT
Randy Reeve - ODFW
Lance Clark - ODOT
Melissa Fricke - ODOT

Endangered Species Act - Section 7 Consultation

BIOLOGICAL OPINION

Gooseneck Creek Roughened Chute Fish Passage Project
Oregon Highway 22m - MP 3.97
Polk County, Oregon

Agency:	Federal Highway Administration
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date Issued:	May 31, 2002
Issued by:	For Michael R Crouse D. Robert Lohn Regional Administrator
Refer to:	OSB2002-0061-FEC

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1. ENDANGERED SPECIES ACT

1.1 Background

On March 14 2002, the National Marine Fisheries Service (NMFS) received a request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 formal consultation for the Gooseneck Creek Roughened Chute Fish Passage Project. Gooseneck Creek is a tributary of the South Yamhill River, in Polk County. The project site is on Highway 22 near mile post 3.95. The proposed action is a repair of the channel to establish fish passage in Gooseneck Creek. The project applicant, the Oregon Department of Transportation (ODOT), proposes to establish fish passage and stabilize the site with a combination of large rock and vegetation. FHWA funds would partially finance this project and constitute the Federal nexus. ODOT is responsible for the project design and management.

The effects determination was made using the methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). FHWA determined that the proposed action was likely to adversely affect UWR steelhead. The UWR steelhead was listed as threatened under the ESA on March 25, 1999 (64 FR 14517). Critical habitat was designated on February 16, 2000 (65 FR 7764) and protective regulations were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42423). The project site is also within the range of UWR spring chinook salmon, which were listed as threatened under the ESA on March 24, 1999 (64 FR 14517). Even though an effects analysis was done on UWR chinook salmon critical habitat, they are not known to occur in this basin.

This biological opinion (Opinion) is based on the information presented in the biological assessment (BA), site visits, meetings with NMFS engineers, and the result of the consultation process. The consultation process has involved correspondence and communications to obtain additional information and clarify information in the BA. As a result, modifications were made to the proposal to reduce impacts to the indicated species. This has included revisions to the original design, avoiding impacts to riparian trees, and planting more shrubs and trees to restore the site.

The objective of this Opinion is to determine whether the action to establish fish passage through reconstruction of the channel is likely to jeopardize the continued existence of the UWR chinook salmon or UWR steelhead, or destroy or adversely modify critical habitat.

1.2 Proposed Actions

ODOT is proposing to modify an existing bridge and stream channel to improve fish passage. The stream channel has a significant headcut that has impacted the channel up to the bridge site. This stream channel modification will establish fish passage by eliminating the barrier at the bridge and creating a low flow meandering channel that will be passable to juvenile and adult salmonids.

1.2.1 Bridge Modification

The existing gunnite ledge under the bridge currently impedes fish passage upstream. It would be cut back approximately 1.5 meters (m) to enable rock fill placement in the voids beneath. After removal, the gunnite ledge will be used as fill at the bottom of the pool and covered with large rock. The gunnite floor beneath the bridge will be poured with concrete to repair the scour that has occurred since 1996. The streambed elevation just downstream of the gunnite slab would be raised to above the channel bottom under the bridge for a back-watering effect beneath the bridge. When the new floor is poured, boulders will be placed into the wet concrete and provide structure for migration. A small channel with a slightly lower elevation will be formed into the concrete to minimize the potential for sheet flow during the summer low flow period. Directly under the bridge the concrete floor will extend up the bank allowing more free movement of LWD through the crossing. Where the new channel begins, the boulders will be placed in a way that will back water up over the concrete area under the bridge.

There are existing gabions on the streambank under and below the bridge on both sides of Gooseneck Creek. Because of the squared shape of gabions, they cause an intrusion into the channel and collect debris, reducing their effectiveness. The designers looked at replacing the gabions with boulders, but felt this was not a viable option hydraulically, due to the potential for streamflow to move the material downstream. The proposal is to cut the gabions in half so that they more closely resemble the slope of the stream bank. A layer of concrete will cover these gabions to maintain their integrity.

1.2.2 Work Area Isolation

In order to de-water the work area, stream flow will be diverted into a 61 centimeter (cm) pipe or flume. The flow diversion structure will allow downstream passage for fish. The creek flow will be diverted at the upstream end of the bridge. Water flow will be blocked by two dams, the second dam to be placed on the gunnite floor beneath the bridge to provide a water-tight seal. The diversion pipe will be placed so that the concrete overlay can be applied on the gunnite floor beneath the bridge without being in the way. Pumping of water will be allowed, as approved by ODFW, during periods when the diversion structure must be moved to allow concrete pouring, and other periods not to exceed 48 hours as approved by the ODOT Engineer.

De-watering of the channel and pool will be done in stages for fish removal. After the diversion pipe is in place, the channel just downstream of the pool will be dammed off and the channel allowed to drain by gravity. As the channel drains, certified ODOT fish biologists and/or ODFW fish biologists will monitor for stranded fish. Any small pools and residual wet areas will be netted. Larger pools will be electro-shocked. All fish removed will be allowed to recover and subsequently placed in Gooseneck Creek just downstream of the sediment containment devices in a pool with adequate capacity and cover.

The pool will be dewatered by pumping the level down low enough for successful fish removal. Fish will be removed from the pool with seines, dip-nets, and electroshocking by certified

ODOT fish biologists and/or ODFW fish biologists. Since the pool will contain an estimated 189,000 liters (L) of water, sufficient pumping capacity (at least 1,100 l/min) will be required to drain the pool in one day with breaks to allow seining efforts. Once the volume of the pool is low enough to electroshock, fish removal will continue. The shaded pool underneath the gunnite ledge will be seined and netted but not electroshocked.

Sediment containment devices, such as sedimats, will be placed in the creek channel below the downstream limit of disturbance. Sediment containment devices will be left in place following re-watering of the channel so that sediment that is released from the newly constructed chute will be absorbed.

1.2.3 Stream Channel Modification

Construction of the roughened chute includes dumping of fill rock and granular material into the de-watered pool from the top of the east bank above the pool and placing it with a trackhoe or other equipment. Material will be placed in 1.2-m lifts and will be bucket-compacted. An estimated 2,775 m^3 of metric class 1000 riprap [rock up to 1000 kilograms (kg) max weight] and an estimated 695 m^3 of granular backfill will be placed in the pool and channel to create the chute. The chute will resemble a "ramp" with a slope of 4.1 - 4.5 percent with a constructed thalweg that meanders adjacent to the elevation benches and upland slopes. Large woody material (LWD) and large boulders will be embedded in the constructed slopes adjacent to the 2-year elevation benches to provide energy dissipation, roughness, migration habitat, and cover. The depth of the large rock and granular backfill will taper down to a point approximately 70 m downstream of the bridge. At the toe of the chute, a trench will be excavated across the channel and 1500-2000 kg boulders will be placed in the trench to hold the bottom of the chute in place and to provide energy dissipation.

Access to the creek will be from the north side of the highway east of the bridge. A 5-m wide road will be constructed through the riparian zone. Geotextile fabric will be applied on the ground and gravel spread over top of the fabric. A turn-around will be constructed in an area within the riparian that is void of trees, to allow trucks to back up and turn around. The approach route of the access road will be located to miss all but an estimated six small oak and maple trees and some clumps of shrubs. On-the-ground location of the access road may be able to avoid trees to minimize tree removal. A group of Douglas-fir trees will be avoided.

Equipment will be used to construct an access ramp down into the creek bottom in the northeast quadrant. The equipment will operate in the isolated, de-watered channel once the access is complete.

ODOT and ODFW personnel met with NMFS personnel to determine if the design and analysis was adequate and issues were addressed. ODOT agreed to monitor water velocities throughout the new channel during different flows. This monitoring protocol was outlined in an letter from Randy Floyd of ODOT dated April 19, 2002. There was also agreement to have Lance Clark of

ODOT or Randy Reeve of ODFW on site while implementing the project to assist with "field fit" portions.

Topographic benches 1-2 m wide that would support willows will be constructed at the two-year flood elevation on the inside of the thalweg meanders that will support willows. Topsoil will be placed at the top of the rock slope of the chute on the west side just downstream of the bridge. Trees and shrubs will be planted in the topsoil.

Construction of the upland slopes adjacent to the pool will entail grading of the tops of the banks back 5 to 7 m to taper the chute back to existing ground. Small trees and shrubs growing on the tops of the banks adjacent to the pool will be removed on both sides of the creek. Downstream of this area, the rock chute will tie in to the existing banks.

1.2.4 Revegetation of the Site

Temporary seeding will be done on the access road, access ramp, side slopes, and turn-around area as necessary during construction to stabilize slopes. Following completion of the roughened chute, the access road will be removed by lifting and removing the gravel and geotextile. During the appropriate season, willows will be planted on the Two-year benches in soil pockets. Trees and shrubs will be planted in top soil on the upper slope on the west side and permanent seeding will be done. ODOT has stated in the BA that they will fund an anticipated item to cover re-planting of trees or shrubs that do not survive during the establishment period. Achievement of proper riparian function will take many years.

1.2.5 Compensatory Mitigation

Mitigation for vegetation removal will be accomplished by planting willows, trees and shrubs. An estimated 300 locally-collected willow cuttings will be planted in soil pockets along the constructed 2-year elevation benches. On the graded terraces on the west side of the stream, eight-liter containerized trees and shrubs will be planted on 1-m centers. Trees will include 40 big-leaf maple (*Acer macrophyllum*) and 40 red alder (*Alnus rubra*). Shrubs will include 40 cascara (*Rhamnus purshiana*), 40 red-osier dogwood (*Cornus sericea*), 40 Pacific ninebark (*Physocarpus capitatus*), and 40 vine maple (*Acer circinatum*). A total of 240 trees and shrubs will be planted. These plantings are designed to restore the functional riparian zone that was removed by the headcut.

Mitigation for the loss of instream habitat in the pool and channel will be accomplished by incorporating habitat elements into the constructed channel of the roughened chute. A minimum of nine logs with root wads attached would be incorporated into the chute near the 2-year elevation at three to four locations. At least fifteen boulders (3000 kg each) will be installed in association with the root wads and channel to help anchor and provide hydraulic roughness, energy dissipation, and cover. Small pools will be constructed as part of the chute thalweg to maintain fish passage during low flow periods. The root wads and boulders will enhance the

existing instream habitat created by the headcut, providing structural diversity that currently does not exist.

1.3 Biological Information and Critical Habitat

The listing status and biological information for UWR steelhead are described in Busby et al. (1996) and NMFS (1997). The listing status and biological information for UWR chinook salmon are described in Myers et al. (1998). The NMFS designated critical habitat for UWR steelhead and UWR chinook salmon on February 16, 2000 (65 FR 7764) and applied protective regulations under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). The adjacent riparian zone is included in this critical habitat designation.

Critical habitat for UWR steelhead includes the Willamette River and its tributaries above Willamette Falls upstream to and including the Calapooia River. Critical habitat for UWR chinook salmon includes the Clackamas River and the Willamette River and its tributaries above Willamette Falls. Freshwater critical habitat includes all waterways, substrates, and adjacent riparian areas (areas adjacent to a stream that provide shade, sediment, nutrient or chemical regulation, streambank stability, and input of LWD or organic matter) below longstanding, natural impassable barriers (i.e., natural waterfalls in existence for at least several hundred years) and several dams that block access to former UWR steelhead and UWR chinook salmon habitat. The proposed action will occur within designated critical habitat for UWR steelhead and UWR chinook salmon.

UWR steelhead are a late run winter steelhead. Hatchery fish are widespread throughout the region. Both summer steelhead and early-run winter steelhead have been introduced to the basin and escape to spawn naturally in substantial numbers. Winter steelhead are in steep decline after exhibiting wildly fluctuating abundance. Recent average adult abundance has been estimated at 3,000 fish. Natural fish adult returns in 1995 were the lowest in 30 years. Declines have been recorded in almost all natural populations. Natural steelhead integrity is at risk from introduced summer steelhead.

Upstream spawning migration of winter steelhead primarily begins in March and April, and peaks from April through June. Adult steelhead use the South Yamhill River as a migratory corridor and spawn in the upper reaches. Parr emerge from the gravel in late spring/early summer, rear in the stream for one or two years, and outmigrate during spring run-off as smolts.

Although the South Yamhill River is not known to support chinook salmon, it has been designated as critical habitat. Adult spring chinook salmon require deep pools within reasonable proximity to spawning areas where they hold and mature for several months between migration and spawning. Preferred spawning and rearing areas have a low gradient (generally less than 3%), but adults often ascend much higher gradient reaches to find desirable spawning areas.

1.4 Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of defining the biological requirements and current status of the listed species and evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize the listed or proposed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' proposed or designated critical habitat. NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent measures available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing of the UWR steelhead and UWR chinook salmon under the existing environmental baseline.

1.4.1 Biological Requirements

The first step the NMFS uses when applying the ESA section 7(a)(2) to listed salmonids is to define the species' biological requirements that are most relevant to each consultation. The NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list UWR steelhead and UWR chinook salmon for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for UWR steelhead and UWR chinook salmon to survive and recover to naturally-reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing. UWR steelhead and UWR chinook salmon survival in the wild depends upon the proper functioning of certain ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while at the same time removing adverse impacts of current practices. In conducting analyses of habitat-altering actions, NMFS defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat approach" to its analysis (NMFS 1999). The current status of the UWR steelhead and UWR chinook salmon, based upon their risk of extinction, has not significantly improved since the species were listed.

1.4.2 Environmental Baseline

The defined action area is the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities include the immediate watershed containing the channel modification and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and streambank of Gooseneck Creek extending upstream to the edge of disturbance, and downstream approximately 70 m to the bottom of the project. The area within the project site will have long-term hydraulic impacts due to the construction of the roughened chute. Other reaches of Gooseneck Creek or the Yamhill River watershed are not expected to be directly or indirectly impacted.

Gooseneck Creek is a tributary of Mill Creek, which is a tributary of the South Yamhill River, within the Upper Willamette River Basin. The project is located at the Gooseneck Creek Bridge over Gooseneck Creek on Oregon Highway 22 at MP 3.97 approximately 1 mile from the confluence with Mill Creek. The geology of the South Yamhill River floodplain is dominated by alluvium, which is composed of unconsolidated and poorly sorted clay, silt, sand, and gravel. Consequently, the most common soil-types are poorly drained to moderately well-drained silty clay loams and silt loams. This provides adequate availability and recruitment of spawning gravels, but streambank erosion can result in significant siltation in gravel deposits and sedimentation of benthic areas.

Gooseneck Creek is a moderate gradient stream with a gravel/cobble substrate and good areas for spawning. Agriculture is the dominant land use and there is a gravel mining operation downstream. There are no known downstream barriers to downstream fish use. Winter steelhead use Gooseneck Creek for spawning and juvenile rearing.

The South Yamhill River from Willamina Creek to the headwaters is listed on the Oregon Department of Environmental Quality (ODEQ) 303(d) List of Water Quality Limited Water Bodies for not meeting the bacteria criterion. The sample site was located 6 miles upstream of the confluence of Mill Creek and the South Fork of the Yamhill River. Water quality criteria are deficient in additional reaches of the South Yamhill River downstream of Willamina Creek. Deficient criteria include temperature, flow modification and bacteria.

Based on the best available information on the current range-wide status of UWR steelhead and UWR chinook salmon; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area, NMFS concludes that the biological requirements of the identified ESU within the action area are not currently being met. River basins have degraded habitat resulting from agricultural and forestry practices, water diversions, and urbanization. The following habitat indicators are either at risk or not properly functioning within the action area: Turbidity/sediment; chemical contamination/nutrients; LWD; substrate; pool quantity and quality; off-channel and refugia habitat; temperature; physical barriers; floodplain connectivity; streambank condition; change in peak/base flows; increase in drainage network; road density and location; riparian reserves and disturbance history. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of UWR steelhead.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The effects determination in this Opinion was made by evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. The effects were analysed based on different actions within the project (construction effects, in-water work, and isolation of the channel).

The proximity of the highway to Gooseneck Creek has reduced the habitat complexity of the stream reach by limiting stream migration within its floodplain and preventing the development of a riparian canopy at the bridge. The interface between the highway and the creek will continue to cause fish passage problems in the future if no action is taken to correct it.

This section of Gooseneck Creek is predominately used as a migratory corridor by ESA-listed fish species. Because of the proximity to Mill Creek, a variety of species and life stages may utilize the project reach. The removal of the barrier, channel modification, and streambank restoration activities were scheduled so that they would occur during the Oregon Department of Fish and Wildlife (ODFW) defined in-water work period. ODOT and NMFS engineers have

met and are comfortable with the design and monitoring of the project. and Upstream fish passage would not be maintained through the water diversion. However, the area does not currently pass fish at times of low flow, so there would not be a change in current conditions during these activities. This project would establish upstream passage for both adults and juvenile salmonids. Because of the extent of in-water work and flow diversion associated with this project, direct harm to fish associated with these actions is reasonably certain to occur.

Construction effects - Riprap would be installed around the perimeter of the channel in the project area. The riprap is necessary to reduce the scour along the banks and provide stability within the new channel. The use of riprap has the potential to change salmonid migration and rearing behavior. These effects are expected to be long term, but localized. The riprap would also potentially hinder localized water exchange processes and floodplain connectivity in the area underneath and immediately below the bridge. However, these processes currently are completely non-functioning because this area has significant head cut and erosion.

Riprap will be placed during the low-water season. Geotextile fabric will be placed underneath the riprap. Some larger rocks may be placed into the flowing stream, however, isolation and careful placement of large, clean boulders will minimize turbidity and other impacts to fish. Natural substrate material would cover the riprap, thereby providing the same structure as in natural systems.

Water temperatures at the roughened chute may increase due to loss of the pool. The mass of rock in the chute may absorb solar heat in summer and warm slow stream water. Planted trees and shrubs will restore shading in 5 to15 years, but solar heating of rock in the chute may continue during summer low flows.

The existing pool, gravel bars, and channel bottom for a distance of 70 m below the bridge will be replaced with a chute constructed of boulders, rocks, and finer material. Ongoing bedload transport should maintain fine sediments in the chute.

The cover and shelter provided by the large pool will be permanently lost, however, small pools will be included in the chute thalweg design to aid fish passage during low flow periods. Root wads and boulders will be incorporated into the constructed thalweg of the chute to restore cover and enhance instream habitat by providing structural diversity. The addition of LWD with rootwads will effect the hydrology of the stream. These effects will be creation of small pools within the thalweg, velocity breaks, and maintenence of a low flow channel.

Changes in stream morphology following construction of the chute will result in different stream velocities through the chute where a large pool once existed due to an increase in stream gradient. The removal of the barrier will entail creation of areas of higher velocities and the loss of a pool. Within this roughened chute, LWD with rootwads will create several smaller pools which will aid in migration and rearing. The LWD will create cover within this area that does not currently exist. The design of the roughened chute will allow for velocities less than 0.61 m/second during 90% of the flows, which meets fish passage criteria.

The riprap placed along the streambank of Gooseneck Creek reduces the potential quality of riparian habitat available. Herbaceous growth at the site will be reduced in the short term, as will habitat complexity. The large rock along the bank will reduce foraging and holding opportunities compared to a properly functioning streambank. This impact will be reduced by staggering the toe of the boulders to create flow refuges, placing LWD with root wads in the riprap, and planting trees among the boulders to increase shade and organic inputs. The irregular toe and LWD will add complexity to the reach, creating low velocity areas for migration and cover. In 5 to10 years the planted trees and shrubs will shade the stream during warm summer months and increase organic input to the stream. LWD recruitment potential will increase with the maturity of planted trees in 40 to 60 years. The headcut has already removed riparian vegetation adjacent to the pool and the channel downstream down to the confluence with Mill Creek. Existing willows and blackberries on the west bank near the bridge will be removed during chute construction. Vegetation will be planted next to the constructed channel in the chute. Riparian vegetation will benefit in the longterm.

Loss of existing vegetation on the west slope near the bridge will cause a minor reduction in the source of insect habitat and food. Loss of existing channel substrate will reduce the aquatic prey base. Once planted vegetation has matured (5-15 years) and aquatic prey species have reestablished in chute rock habitat (1-2 years), food availability will return. The streambanks that have been headcut will be shaped back to 2 year flood elevation benches. LWD with rootwads attached will be associated with the streambank restoration providing bank stability and cover withing the channel. There may be short-term increases in turbidity, however, over time the plantings will revegetate the benches and streambanks providing shade, stability and cover.

The potential exists below the project for increased turbidity in the stream. Juvenile steelhead are visual predators, and low water clarity decreases foraging success. If steelhead are present, the increased turbidity will decrease feeding activity and likely displace fish from the project area. Erosion control measures implemented as part of the proposed action are intended to eliminate and minimize turbidity. Because of the low volume of flow during the in-water work period and the narrow wetted channel width in the summer, sediment containment devices such as sedimats should be effective in absorbing sediment.

In-water work - Any in-water work has the potential to increase erosion from the streambank, and turbidity in the river. Possible impacts to water quality could occur from construction-related debris, chemical contamination, and increased turbidity levels. Localized increases of erosion/turbidity during in-water work is reasonably certain to displace UWR chinook salmon, UWR steelhead and other fish in the project area and disrupt normal behavior. These effects are expected to be temporary and localized. Water quality impacts would be minimized or avoided through the development and implementation of a Pollution Control Plan (PCP) and water diversion measures. Both ODOT Environmental Staff and the Engineer would review the PCP prior to work commencement.

Containment of the work area and other measures would prevent construction-related debris, chemicals, green concrete, and excessive turbidity from contaminating the water. The water diversion measures are intended to further minimize impacts to water quality. The proposed channel modifications would be conducted in the dry, thereby minimizing turbidity and opportunities for contamination. The removed debris would be placed in an approved upland site. Short-term increases in sediment are expected during and immediately after construction. No long-term changes in existing sediment levels are expected. There is a short-term risk of pollutants from equipment during construction. No adverse water quality effects are expected from pouring the concrete beneath the bridge. This work area isolation should minimize or eliminate the potential for water quality problems downstream due to construction.

Channel isolation - Isolation of the channel would have direct effects to ESA-listed fish during the fish removal and relocation process. Direct harm to fish species may occur during structure removal and construction activities. The probability of harm is less likely because these activities would be conducted during the ODFW defined in-water work period, when fewer fish are likely to be present. During channel modification activities, passage would be blocked by the diversion and fish would be removed from the work area and relocated to an area downstream with adequate cover and water quality. The resulting lack of upstream fish passage during construction would be the same condition that currently exists during low flow conditions.

The effects of these activities on UWR chinook salmon and UWR steelhead and aquatic habitat would be limited by implementing construction methods and approaches, included in the project design, that are intended to avoid or minimize impacts.

The proposed action would cause temporary impacts to UWR steelhead and UWR chinook salmon and their habitat, but would provide a long-term benefit by reducing local erosion, enhancing riparian overstory cover and re-establishing fish passage. The track hoe would be working directly in the isolated portion of the stream channel. A toe trench would be excavated in the stream and large boulders placed at the bottom of the new channel.

The dewatering and fish removal operation will be completed in one day in order to avoid mortality of stranded fish and to prevent deterioration of water quality in the isolated pool. Because time is needed to construct the dams and install a diversion pipe, much of the preparation work will likely be done the day prior to dewatering and fish removal.

The large size of the pool and its shaded overhang make it difficult to estimate how many fish may be in the pool during the in-water work period. The level of take estimated in the BA is based on density sampling of salmonids in western Oregon, and represents the best available information.

The NMFS expects the proposed action will create beneficial habitat conditions over the long term based on the current condition of the site. In the long term there would be some hydraulic effects within the channel, however, establishing fish passage will offset these effects and allow

access to nearly 10 km of additional spawning and rearing habitat. In the short term, a temporary increase in sediment entrainment and turbidity, temperature, and disturbance of riparian habitat is expected. UWR steelhead may be killed or stressed during the fish removal process in Gooseneck Creek.

1.5.2 Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for UWR steelhead and UWR chinook consists of all waterways below naturally-impassable barriers including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of LWD or organic matter.

The proposed actions will affect critical habitat. In the short term, a temporary increase of sediments and turbidity, disturbance of riparian habitat, and temperature is expected. In the long term, a slow recovery process would occur as the plants mature. Also, habitat complexity would increase at the site with the addition of the boulder clusters and LWD. NMFS does not expect that these actions will diminish the value of the habitat for survival of UWR steelhead and UWR chinook salmon and would have a beneficial value for fish passage.

Gooseneck Creek provides potential critical habitat for the UWR chinook, even though no spawning presently occurs in the South Yamhill system. Designated critical habitat includes all river reaches accessible to chinook salmon in the Willamette River and its tributaries above Willamette Falls. Critical habitat consists of the water, substrate, and adjacent riparian zone of accessible riverine reaches. NMFS defines the adjacent riparian zone based on key riparian functions. These functions are the area adjacent to the stream that provide shade, sediment, nutrient or chemical regulation, streambank stability, and input of LWD or organic matter.

The proposed action would not affect water quantity (no change in peak/base flows). The essential features of proposed critical habitat that would be impacted (adversely and beneficially) by the proposed action are included in section 1.5.1, Effects of Proposed Action.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area has been defined as the streambed and streambank of Gooseneck Creek extending upstream to the edge of disturbance, and downstream approximately 70 m to the bottom of the project. A wide variety of actions occur within the Yamhill River basin and the Upper Willamette River watershed, within which the action area is located. NMFS is not aware of any significant change in such non-federal

activities that are reasonably certain to occur. NMFS assumes that future private and State actions will continue at similar intensities as in recent years. Future ODOT transportation projects are planned in the Upper Willamette River watershed. Each of these projects will be reviewed through separate section 7 consultation processes and therefore are not considered cumulative effects.

1.6. Conclusion

After reviewing the current status of UWR steelhead and UWR chinook salmon, the environmental baseline for the action area, the effects of the proposed Gooseneck Creek Fish Passage Project and the cumulative effects, NMFS concludes that this project, as proposed, is not likely to jeopardize the continued existence of the UWR steelhead or UWR chinook salmon, and is not likely to destroy or adversely modify designated critical habitat. This conclusion is based on findings that the proposed action will improve fish passage, streambank stabilization through plantings and LWD placement within the riprapped section will improve habitat, and the work will be done during the instream work period when few juveniles are expected to be present.

1.7 Reinitiation of Consultation

This concludes formal consultation on the Gooseneck Creek fish passage project. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: 1) The amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; 3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or 4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. A Federal court has vacated the rule designating critical habitat for the ESUs considered in this opinion, however, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary.

2. INCIDENTAL TAKE STATEMENT

Section 4(d) and Section 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering (50 CFR 222.102; October 1, 2000). Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that

results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement. An incidental take statement specifies the impact of any incidental taking of threatened species. If necessary, it also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount or Extent of Take

The NMFS anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of UWR steelhead because of detrimental effects from increased sediment levels (non-lethal), the potential for direct incidental take during the work area isolation, and delayed mortality due to handling during the fish removal process. Even though the action area is within designated critical habitat for UWR chinook salmon, they are not known to exist here and take will not be quantified. Effects of actions such as the placement of rock in the channel and increased sediment levels are largely unquantifiable in the shortterm, and are not expected to be measurable as long-term harm to habitat features or by long-term harm to UWR steelhead behavior or population levels. Therefore, even though NMFS expects some low-level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the BA, NMFS anticipates that an unquantifiable amount of incidental take is reasonably certain to occur as a result of the actions covered by this Opinion.

In addition, NMFS expects that the possibility exists for handling UWR steelhead during the work isolation process, which will result in incidental take to individuals during the construction period. NMFS anticipates that incidental take of up to 400 juvenile UWR steelhead (380 non-lethal and 20 lethal) could occur as a result of the fish removal process due to dewatering and rewatering of the channel. The extent of the take is limited to UWR steelhead within the action area. The extent of the take includes the streambed and streambank of Gooseneck Creek extending upstream to the edge of disturbance, and downstream approximately 70 m to the bottom of the project.

2.2 Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of UWR steelhead resulting from the action covered by this Opinion. The FHWA shall require measures that will:

1. Minimize the amount and extent of incidental take from rock placement and stabilization activities on the streambank of Gooseneck Creek by requiring measures be taken to limit

the duration and extent of rock placement in the action area, and to schedule such work when the fewest number of fish are expected to be present.

2. Minimize the likelihood of incidental take from activities involving roughened chute construction, modifications below the bridge, channel alteration, use of heavy equipment, site restoration, or that may otherwise involve in-water work or affect fish passage, and direct the contractor to avoid or minimize disturbance to riparian and aquatic systems. Effective erosion and pollution control measures shall be developed and implemented to minimize the movement of soils and sediment into Gooseneck Creek.

3. Minimize the likelihood of incidental take from in-water work activities and ensure that in-water work activities (bridge modification and stream channel alteration) are isolated from flowing water.

4. Ensure effectiveness of implementation of the reasonable and prudent measures by requiring that all erosion control measures and plantings for site restoration, shall be monitored and evaluated both during and following construction. Monitoring shall include elements of the roughened chute that enable fish passage.

2.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (rock placement and bank stabilization activities), the FHWA shall require completion of the following:

    a. Rock will be individually placed in a way that produces an irregularly contoured face to provide velocity disruption. No end dumping will be allowed for bank stabilization. For the stream channel alteration end dumping will be allowed at the access site and then moved within the channel.
    b. Any instream large wood or riparian vegetation that is moved or altered during construction will stay on site and be replaced with a functional equivalent. Large wood with root wads attached shall be of adequate size (18 - 24 inch dbh).

    c. The surface of the new channel shall be covered with natural substrate to be placed over the large rock lining the bottom of the stream. The gravel must be clean and sized to match the substrate above and below the project site.
    d. Where feasible, the bankline and riprap will be revegetated using natural vegetation (eg. willow stakes).

2. To implement Reasonable and Prudent Measure #2 (construction, channel alteration, and modifications to the channel below the bridge), the FHWA shall ensure that:

a. Project design. Alteration or disturbance of the stream banks and existing riparian vegetation will be minimized. ODOT or ODFW biologists need to be onsite at all times to ensure the contractor completes the fish passage project as designed.

b. In-water work. All work within the active channel will be completed within the ODFW defined in-water work period for the site.

c. Pollution and Erosion Control Plan. A Pollution and Erosion Control Plan (PECP) will be developed for the project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations:
   i. Methods that will be used to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations and staging areas.
   ii. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
   iii. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.
   iv. Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

d. Pre-construction activities. Prior to significant alteration of the action area, the following actions will be accomplished.
   i. A supply of erosion control materials (e.g., silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.
   ii. All temporary erosion controls (e.g., straw bales, silt fences) are in-place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

e. Earthwork. Earthwork including excavation, filling and compacting, is completed in the following manner:
   i. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained from outside of the riparian area or as otherwise approved by NMFS.
   ii. Material removed during excavation will only be placed in locations where it cannot enter streams or other water bodies.
   iii. All exposed or disturbed areas will be stabilized to prevent erosion.

(1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding, mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within 7 days of exposure.

(2) All other areas will be stabilized as quickly as reasonable, but within 14 days of exposure.

(3) Seeding outside of the growing season will not be considered adequate for permanent stabilization.

f. Heavy Equipment. Heavy equipment will be fueled, maintained and stored as follows.

i. Vehicle staging, maintenance, refueling, and fuel storage areas will be a minimum of 150 feet horizontal distance from any stream.

ii. All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.

iii. When not in use, vehicles will be stored in the vehicle staging area.

g. Site restoration. Site restoration and clean-up, including protection of bare earth by seeding, planting, mulching and fertilizing, will be done in the following manner.

i Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.

ii No herbicide application will occur as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.

iii No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.

iv Plantings will achieve an 80 percent survival success after five years.

(1) If success standard has not been achieved after 5 years, the applicant will submit an alternative plan to NMFS. The alternative plan will address temporal loss of function.

(2) Plant establishment monitoring will continue and monitoring reports will be submitted to the NMFS on an annual basis until site restoration success has been achieved.

3. To implement Reasonable and Prudent Measure #3, the FHWA shall ensure that the in-water work activities (new channel construction and riprap placement), are isolated from flowing water.

a. If the fish salvaging aspect of this project requires the use of seine equipment to capture fish, it must be accomplished as follows:

i. Before and intermittently during pumping, attempts will be made to seine and release fish from the work isolation area as is prudent to minimize risk of injury.

ii. Seining will be conducted by, or under the supervision of a fishery biologist experienced in such efforts. Staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.

iii. ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever appropriate, to prevent the added stress of an out-of-water transfer.

iv. Seined fish must be released as near as possible to capture sites.

v. The FHWA shall ensure that the transfer of any ESA-listed fish to third parties other than NMFS personnel receives prior approval from NMFS.

vi. The FHWA shall ensure that any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities will be obtained prior to project seining activity.

vii. The FHWA must allow NMFS or its designated representative to accompany field personnel during the seining activity, and allow such representative to inspect the seining records and facilities.

viii. A description of any seine and release effort will be included in a post-project report, including the name and address of the supervisory fishery biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions before and following placement and removal of barriers, the means of fish removal, the number of fish removed by species, the condition of all fish released, and any incidence of observed injury or mortality. If the incidental take is exceeded the operation shall cease and NMFS shall be contacted.

b. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, it must be accomplished as follows (NMFS 2000):

i. Electrofishing may not occur near listed adults in spawning condition or near redds containing eggs.

ii. Equipment must be in good working condition. Operators must go through the manufacturer's preseason checks, follow all provisions, and record major maintenance work in a log.

iii. A crew leader having at least 100 hours of electrofishing experience in the field using similar equipment must train the crew. The crew leader's experience must be documented and available for confirmation; such documentation may be a logbook. The training must occur before an inexperienced crew begins any electrofishing; it must also be conducted in waters that do not contain listed fish.

iv. Measure conductivity and set voltage as follows:

	Conductivity (umhos/cm)	Voltage
(1)	Less than 100	900 to 1100
(2)	100 to 300	500 to 800

(4) Greater than 300 150 to 400

v. Direct current (DC) must be used at all times.

vi. Each session must begin with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of 500 us and do not exceed 5 milliseconds. Pulse rate should start at 30Hz and work carefully upwards. In general, pulse rate should not exceed 40 Hz, to avoid unnecessary injury to the fish.

vii. The zone of potential fish injury is 0.5 m from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated because in such areas the fish are more likely to come into close contact with the anode.

viii. The monitoring area must be worked systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.

ix. Crew members must carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. Sampling must be terminated if injuries occur or abnormally long recovery times persist.

x. Whenever possible, a block net must be placed below the area being sampled to capture stunned fish that may drift downstream.

xi. The electro-fishing settings must be recorded in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, with observations on fish condition, will improve technique and form the basis for training new operators.

c. After completion of the project, the existing channel should be re-watered in a way that will not significantly impact water quality or cause fish stranding.

i. The diversion pipe shall be maintained in place while slowly dismantling the upper and lower dams. This will allow the new channel to slowly water-up, while still maintaining flow in the lower channel below the project. Because the area above the upper dam has temporarily expanded usable habitat for fish, slowly ramping the water will allow fish to get back into the actual low-flow channel. An ODOT or ODFW biologist shall be on site to monitor for fish stranding during this process.

d. Any pump used for dewatering or diverting authorized under this Opinion must have a fish screen installed, operated and maintained in accordance to NMFS' fish screen criteria.

4. To implement Reasonable and Prudent Measure #4 (monitoring and reporting), the FHWA shall ensure that:

a. Within 120 days of completing the project, the FHWA shall ensure submital of a monitoring report to NMFS describing the FHWA's success meeting their permit conditions. This report will consist of the following information.

i. Project identification.
   (1) Project name;
   (2) starting and ending dates of work completed for this project;
   (3) the FHWA contact person; and,

ii. Isolation of in-water work area. All projects involving isolation of in-water work areas must include a report of any seine and release activity including:
   (1) The name and address of the supervisory fish biologist;
   (2) methods used to isolate the work area and minimize disturbances to fish species;
   (3) stream conditions prior to and following placement and removal of barriers;
   (4) the means of fish removal;
   (5) the number of fish removed by species;
   (6) the location and condition of all fish released; and
   (7) any incidence of observed injury or mortality.

iii. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.

iv. Site restoration. Documentation of the following conditions:
   (1) Finished grade slopes and elevations.
   (2) Log and rock structure elevations, orientation, and anchoring, if any.

v. Photographic documentation of environmental conditions at the project site before, during and after project completion.
   (1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre- and post-construction.
   (2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
   (3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

f. Monitoring. On an annual basis, for 5 years after completing the project, the FHWA shall ensure submital of a monitoring report to NMFS describing the FHWA's success in meeting their habitat restoration goals of the riparian plantings and hydrology within the roughened chute at different flows. This report will consist of the following information:

i. Project identification.
   (1) Project name,
   (2) starting and ending dates of work completed for this project, and
   (3) the FHWA contact person.

ii. Riparian restoration. Documentation of the following conditions:
   (1) Any changes in planting composition and density.
   (2) A plan to inspect and, if necessary, replace failed plantings and structures, including the compensatory mitigation site.

iii. Hydrology monitoring of the new channel. Documentation of the following elements:
   (1) Water velocity profiles throughout the channel during low, medium and migratory flows.
   (2) Observations of juvenile and adult fish usage and passage.
   (3) Survey of the channel to determine whether goals were met on design and if improvements can be made to enhance fish passage.

3. MAGNUSON-STEVENS ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed actions may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable

fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for Federally-managed fisheries within the waters of Washington, Oregon, and California. Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years)(PFMC 1999).

Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of the potential adverse effects to these species' EFH from the proposed action is based on this information.

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*)(PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed

descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Action

The proposed action is detailed above in Part 1.2. The action area for this consultation includes the streambed and streambank of Gooseneck Creek extending upstream to the edge of disturbance, and downstream approximately 70 m to the bottom of the project. This area has been designated as EFH for chinook salmon.

3.5 Effects of Proposed Action

Spring chinook salmon spawn downstream of the confluence of the South Yamhill River and the Yamhill River, but do not utilize the South Yamhill River. NMFS believes the implementation of the fish passage project is likely to adversely affect EFH for chinook salmon. Information submitted by the FHWA in its request for consultation and additional information provided by ODFW is sufficient for NMFS to conclude that the effects of the proposed action are transient, local, and of low intensity and are likely to adversely EFH in the short term, however over the long term enhanced fish passage, riparian growth and LWD within the channel will provide a benefit if UWR chinook salmon eventually utilize the South Yamhill River. NMFS also believes that providing fish passage will provide a beneficial effect and the conservation measures proposed as an integral part of the action would avoid, minimize, or otherwise offset potential adverse impacts to designated EFH.

3.6 Conclusion

The NMFS believes that implementation of the bridge replacement project in Gooseneck Creek is likely to adversely affect designated EFH for chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project in the BA by the FHWA, all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.3 (Numbers 1 and 2) are applicable to EFH. Therefore, NMFS incorporates each of those measures here as EFH recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NMFS after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a

description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NMFS if either the action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

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